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US-PAT-NO: <u>6073124</u>
DOCUMENT-IDENTIFIER: US 6073124 A

TITLE: Method and system for securely incorporating electronic information into an online purchasing application

DATE-ISSUED: June 6, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Krishnan; Ganapathy	Bellevue	WA		
Guthrie; John	Seattle	WA		
Oyler; Scott	Seattle	WA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
ShopNow.com Inc.	Seattle	WA			02

APPL-NO: 08/ 895221   [PALM]
DATE FILED: July 15, 1997

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATIONS This application is a continuation-in-part of a U.S. Provisional Application No. 60/049,844, entitled "A Method and System of Securely Incorporating Digital Information into an Electronic Store," filed on Jun. 17, 1997, which is hereby incorporated by reference in its entirety. This application is also a continuation-in-part of U.S. patent application Ser. No. 08/792,719, entitled "Method and System for Injecting New Code Into Existing Application Code," filed on Jan. 29, 1997, and which is hereby incorporated by reference in its entirety.

INT-CL: [07] <u>G06 F 17/60</u>

US-CL-ISSUED: 705/59; 705/51, 705/26
US-CL-CURRENT: <u>705/59</u>; <u>705/26</u>, <u>705/51</u>

FIELD-OF-SEARCH: 705/1, 705/18, 705/21, 705/26, 705/51, 705/59, 380/3, 380/4, 380/23, 380/24, 380/25, 380/277

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | Search ALL |

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☐ 5337357	August 1994	Chou et al.	380/4
☐ 5390297	February 1995	Barber et al.	364/280
☐ 5530752	June 1996	Rubin	380/4
☐ 5553143	September 1996	Ross et al.	380/25
☐ 5592549	January 1997	Nagel et al.	380/4
☐ 5708709	January 1998	Rose	380/4
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☐ 5758068	May 1998	Brandt et al.	713/200
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☐ 5805802	September 1998	Marx	380/4
☐ 5845070	December 1998	Ikudome	380/25
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☐ 5897622	April 1999	Blinn et al.	705/26
☐ 5898777	April 1999	Tycksen, Jr. et al.	380/4
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☐ 5918213	June 1999	Bernard et al.	705/26
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ART-UNIT: 274

PRIMARY-EXAMINER: Trammell; James P.

ASSISTANT-EXAMINER: Rosen; Nicholas David

ABSTRACT:

A method and system for facilitating digital commerce using a secure digital commerce system is provided. The secure digital commerce system is arranged according to a client/server architecture and includes a modularized DCS client and DCS server. The DCS client and the DCS server are incorporated into an online purchasing system, such as a virtual store, to perform the purchase and online delivery of electronic content. The DCS client includes a set of components which include a secured copy of the merchandise and various components needed to license and purchase the merchandise and to unsecure and process (e.g., execute) the licensed merchandise. The DCS client communicates with the DCS server to download the components onto a customer's computer system and to license and purchase a requested item of merchandise. The DCS server, which includes a content supplier server, a licensing and purchasing broker, and a payment processing function, supplies merchandise-specific components and licenses the requested item of merchandise by generating an electronic certificate. The electronic certificate contains license parameters that are specific to the requested merchandise and an indicated purchasing option. Once a valid electronic license certificate for the requested merchandise is received by the DCS client, the merchandise is made available to the customer for use in accordance with the licensing parameters contained in the electronic license certificate.

16 Claims, 21 Drawing figures

DOCUMENT-IDENTIFIER: US 6073124 A
TITLE: Method and system for securely incorporating electronic information into an online purchasing application

US PATENT NO. (1):
6073124

Brief Summary Text (2):
The present invention relates to facilitating the purchase of electronic information using digital commerce and, in particular, to providing a component-based architecture that facilitates online licensing and purchase of digital content and software.

Detailed Description Text (56):
Specifically, in step 2102, the broker determines whether there are more items remaining to be processed for the request and, if so, continues in step 2103, else finishes processing. In step 2103, the licensing and purchasing broker determines whether the item is an ESD item or a non-ESD item. One mechanism used to determine whether the item is an ESD or a non-ESD item is to store a flag in the version table in the password generation data repository. For each purchasable item (ProductSkuId), the version table stores either a password configuration identifier or a distributor information identifier. In step 2104, if the item is an ESD item, then the broker continues in step 2105, else continues in step 2106. In step 2105, the broker executes the steps previously discussed with reference to FIG. 12 for items that are deliverable online. In step 2106, the broker determines distributor contact information for the non-ESD item from a distributor_information table stored within a data repository. The distributor information table for non-ESD transactions can be stored along with the password generation tables in the password generation data repository or in its own data repository. The distributor information stored in the table includes sufficient location information for contacting a distributor from whom the item can be purchased using an electronic request. In step 2107, the broker obtains preauthorization information for a method of payment specified by the customer. It is assumed in this step that such information has been already obtained. If necessary, however, the broker sends appropriate requests to the code that initiated the purchase request (for example, the user interface library) to obtain method of payment information from the user and to continue accordingly. Preauthorization is necessitated by non-ESD purchases, which require a shipment date before the broker is able to charge the purchase to a customer's credit card. The preauthorization is performed by the payment processing function (e.g., the payment processing function 309 in FIG. 3). In step 2108, if the purchase is preauthorized, then the broker continues in step 2109, else continues in step 2110. In step 2109, the broker sends a purchase order to the located distributor for the merchandise using a well-known Electronic Data Interchange ("EDI") format and commercial EDI products, such as those provided by Digital Corporation. One skilled in the art will recognize that any mechanism that allows information for electronically providing a purchase order would be operable with the licensing and purchasing broker. In step 2110, the broker returns the results of the preauthorization attempt to the requesting routine, and then returns to the beginning of the loop in step 2101.

End of Result Set

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L5: Entry 3 of 3   File: USPT   Feb 3, 1998

US-PAT-NO: 5715403
DOCUMENT-IDENTIFIER: US 5715403 A

TITLE: System for controlling the distribution and use of digital works having
attached usage rights where the usage rights are defined by a usage rights grammar

DATE-ISSUED: February 3, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Stefik; Mark J.	Woodside	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Xerox Corporation	Stamford	CT			02

APPL-NO: 08/ 344041   [PALM]
DATE FILED: November 23, 1994

INT-CL: [06] G06 F 1/14, G06 F 13/372

US-CL-ISSUED: 395/244; 395/188.01, 395/800, 380/23
US-CL-CURRENT: 705/44; 705/54, 705/57, 709/229, 713/202

FIELD-OF-SEARCH: 395/800, 395/600, 395/700, 395/775, 395/650, 395/182.13, 395/608,
395/183.14, 395/201, 395/569, 395/825, 395/712, 395/187.01, 395/188.01, 395/244,
395/217, 380/4, 380/15, 380/18, 380/20, 380/25, 380/24, 380/23, 380/30, 364/DIG.1,
364/DIG.2, 364/41R, 340/825.33, 340/825.34, 348/3, 455/4.1, 455/5.1, 455/26.1

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | Search ALL |

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ART-UNIT: 232

PRIMARY-EXAMINER: Pan; Daniel H.

ABSTRACT:

A system for controlling use and distribution of digital works. The present
invention allows the owner of a digital work to attach usage rights to their work.
The usage rights define how the individual digital work may be used and distributed.
Instances of usage rights are defined using a flexible and extensible usage rights
grammar. Conceptually, a right in the usage rights grammar is a label associated
with a predetermined behavior and conditions to exercising the right. The behavior
of a usage right is embodied in a predetermined set of usage transactions steps. The
usage transaction steps further check all conditions which must be satisfied before
the right may be exercised. These usage transaction steps define a protocol for
requesting the exercise of a right and the carrying out of a right.

L5: Entry 3 of 3   File: USPT   Feb 3, 1998

DOCUMENT-IDENTIFIER: US 5715403 A
TITLE: System for controlling the distribution and use of digital works having
attached usage rights where the usage rights are defined by a usage rights grammar

US PATENT NO. (1):
5715403

Brief Summary Text (21):
A system available from Wave Systems Corp. of Princeton, N.Y., provides for metering
of software usage on a personal computer. The system is installed onto a computer
and collects information on what software is in use, encrypts it and then transmits
the information to a transaction center. From the transaction center, a bill is
generated and sent to the user. The transaction center also maintains customer
accounts so that licensing fees may be forwarded directly to the software providers.
Software operating under this system must be modified so that usage can be
accounted.

Detailed Description Text (65):
From FIGS. 5 and 6 it is readily observed that a digital work can be represented by
its component parts as a hierarchy. The description tree for a digital work is
comprised of a set of related descriptor blocks (d-blocks). The contents of each
d-block is described with respect to FIG. 7. Referring to FIG. 7, a d-block 700
includes an identifier 701 which is a unique identifier for the work in the
repository, a starting address 702 providing the start address of the first byte of
the work, a length 703 giving the number of bytes in the work, a rights portion 704
wherein the granted usage rights and their status data are maintained, a parent
pointer 705 for pointing to a parent d-block and child pointers 706 for pointing to
the child d-blocks In the currently preferred embodiment, the identifier 701 has two
parts. The first part is a unique number assigned to the repository upon
manufacture. The second part is a unique number assigned to the work upon creation.
The rights portion 704 will contain a data structure, such as a look-up table,
wherein the various information associated with a right is maintained. The
information required by the respective usage rights is described in more detail
below. D-blocks form a strict hierarchy. The top d-block of a work has no parent;
all other d-blocks have one parent. The relationship of usage rights between parent
and child d-blocks and how conflicts are resolved is described below.

Detailed Description Text (205):
The digital work can be played, transferred, or copied. Copies or transfers must be
on repositories of security level 3 or greater. Copying requires the license
License-123-ID issued to the copying repository. None of the rights require fees.

Detailed Description Text (441):
In this scenario, a creator wants to protect the reputation and value of his work by
making certain requirements on its distributors. He issues licenses to distributors
that satisfy the requirements, and in turn, promises to reward their efforts by
assuring that the work will not be distributed over competing channels. The
distributors incur expenses for selecting the digital work, explaining it to buyers,
promoting its sale, and possibly for the license itself. The distributor obtains the
right to enclose the digital work in a shell, whose function is to permit the
attachment of usage fees to be paid to the distributor in addition to the fees to be
paid to the creator.

Detailed Description Text (514):

In the simplest scenario, when a user wants to print a _digital_ document he issues a print command to the user interface. If the document has the appropriate rights and the conditions are satisfied, the user agrees to the fee and the document is printed. In other cases, the printer may be on a remote repository and it is convenient to spool the printing to a later time. This leads to several issues. The user requesting the printing wants to be sure that he is not billed for the printing until the document is actually printed. Restated, if he is billed at the time the print job is spooled but the job is canceled before printing is done, he does not want to pay. Another issue is that when spooling is permitted, there are now two times at which rights, conditions and fees could be checked: the time at which a print job is spooled and the time at which a print is made. As with all usage rights, it is possible to have rights that expire and to have rights whose fee depends on various conditions. What is needed is a means to check rights and conditions at the time that printing is actually done.

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US-PAT-NO: 6112181
DOCUMENT-IDENTIFIER: US 6112181 A

TITLE: Systems and methods for matching, selecting, narrowcasting, and/or classifying based on rights management and/or other information

DATE-ISSUED: August 29, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Shear; Victor H.	Bethesda	MD		
Van Wie; David M.	Sunnyvale	CA		
Weber; Robert P.	Menlo Park	CA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
InterTrust Technologies Corporation	Santa Clara	CA			02

APPL-NO: 08/ 965185   [PALM]
DATE FILED: November 6, 1997

INT-CL: [07] G06 F 17/60

US-CL-ISSUED: 705/1
US-CL-CURRENT: 705/1

FIELD-OF-SEARCH: 705/1, 705/10, 705/14, 705/40, 705/400, 707/9, 707/10, 380/4

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

| Search Selected | Search ALL |

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
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ART-UNIT: 271

PRIMARY-EXAMINER: Voeltz; Emanuel Todd

ASSISTANT-EXAMINER: Dixon; Thomas A

ABSTRACT:

Rights management information is used at least in part in a matching, narrowcasting, classifying and/or selecting process. A matching and classification utility system comprising a kind of Commerce Utility System is used to perform the matching, narrowcasting, classifying and/or selecting. The matching and classification utility system may match, narrowcast, classify and/or select people and/or things, non-limiting examples of which include software objects. The Matching and Classification Utility system may use any pre-existing classification schemes, including at least some rights management information and/or other qualitative and/or parameter data indicating and/or defining classes, classification systems, class hierarchies, category schemes, class assignments, category assignments, and/or class membership. The Matching and Classification Utility may also use at least some rights management information together with any artificial intelligence, expert system, statistical, computational, manual, or any other means to define new classes, class hierarchies, classification systems, category schemes, and/or assign persons, things, and/or groups of persons and/or things to at least one class.

220 Claims, 98 Drawing figures

L5: Entry 1 of 3   File: USPT   Aug 29, 2000

DOCUMENT-IDENTIFIER: US 6112181 A
TITLE: Systems and methods for matching, selecting, narrowcasting, and/or
classifying based on rights management and/or other information

US PATENT NO. (1):
6112181

Brief Summary Text (37):
If, for example, you have an auto repair newsletter and you want to create an
article containing information on auto repair of Ford Bronco vehicles, you may wish
to look for detailed, three dimensional, step-by-step "blow-up" mechanical images of
Ford Bronco internal components. Perhaps these are available from hundreds of
sources (including from private individuals using new, sophisticated rendering
graphics programs, as well as from engineering graphics firms). Given the nature of
your newsletter, you have decided that your use of such images should cost you no
more than one penny to redistribute per copy in quantities of several thousand--this
low cost being particularly important since you will have numerous other costs per
issue for acquiring rights to other useful digital information products which you
reuse and, for example, enhance in preparing a particular issue. You therefore wish
to search and match against rights management rules associated with such
products--non-limiting examples of which include:

Brief Summary Text (55):
On the Internet, a digital "store" is likely to be many stores with vast resources
integrating products from many parties. If you were limited to conventional
classification and matching mechanisms, you would be unable to sift through all the
material to identify the commercially acceptable, i.e., an item representing the
right information, at the right price, providing license rights that match your
interests. Certainly, if each digital package looks the same, you are at a loss in
making reasonable decisions. You can't tell one from another just by looking at it.

Brief Summary Text (111):
Looking at FIG. 10, Jill may have used her computer last week to look at information
about baseball, volcanoes and Jeeps. With Jill's permission, the electronic
matchmaker can employ a protected processing environment 154 (schematically shown
here as a tamper-resistant "chip" within the computer--but it can be hardware-based,
software-based, or a combination of hardware and software) to look at the computer's
history records and use them to help match Jill up with other kinds of things she is
or may be interested in. For example, the electronic matchmaker can let an
electronic publisher or other provider or information gatherer (e.g., market survey
conductor, etc.) know that Jill is interested in team sports, geology and sports
utility vehicles with or without more revealing detail--as managed by Jill's choices
and/or rights management rules and controls executing in her computer's protected
processing environment 154. The provider can send information to Jill--either
automatically or at Jill's request--about other, related things that Jill may be
interested in.

Brief Summary Text (116):
The present inventions handle many kinds of important issues and addresses the
widest range of information and rights and automation possibilities. For example,
the present inventions are capable of handling (but are not limited to):

Brief Summary Text (165):
Provides fundamentally important commercial and societal rules based filtering to
identify desired electronic information and/or electronic information containers

through the use of classification structures, profiling technology, and matching mechanisms that harness the vast information opportunities in cyberspace by matching the information needs of users against commercial and/or societal rules related to the use of available information resources, including, for example, commercial and/or societal consequences of digital information use imposed as provider requirements and specified through the use of, and enforced by the use of, a trusted rights management system such as described in "Ginter et al".

Brief Summary Text (371):
allowing content provider modification over time of rules and controls to reflect sales, new pricing, special discounts, etc.--while limiting this right by rules and controls provided by other parties having more senior rights;

Detailed Description Text (291):
The matching and classification utility 900 takes the usage information and other rights management information received from the VDE nodes and/or other information sources and may create at least one category and may assign at least one node and/or user to a cateogry and/or class. In FIG. 47, the matching and classification utility 900 sends a VDE container 2002 to content provider 2010 with information showing the classes of content used by one or more nodes and/or users along with a request that the provider 2010 send similar content back to one or more users 2001. At least one content provider 2010 then sends at least one VDE container 2004 to user A with content and/or information about available content that may be of interest to user A given the history of content usage as reflected in VDE audit records and/or other rights management information. In this "push" example, classes of content or information about available content may be pushed automatically from (a class of) content providers to one or more members of class of users and/or nodes. Consequently, users do not have to search as intensely, if at all, for content of interest to them.

Detailed Description Text (295):
Although the matching and classification utility 900 and/or content provider may send "more of the same," in another example the present inventions support providers at least occasionally sending content more distantly related to the user's apparent interests to determine if the user's circle of interest might be a little larger than that indicated by past usage and other, related rights management information alone.

Detailed Description Text (316):
In another example, the matching and classification utility 900 may receive content and/or rights management information from providers and go on to create classes of content and/or content providers in which the classes may be partly defined using rights management data. Content on one class may, among other things, be distinguished from content in another class by price, payment methods, usage opportunities (e.g., available for printing, available for viewing pay-per-use), usage consequences, and/or specific permissions. The matching and classification utility 900 may subsequently send a communication, perhaps in a VDE container, to providers indicating that they send content in one or more specified classes to at least one DBN server.

Detailed Description Text (317):
Non-limiting example FIG. 48 shows that the DBN 2100 may consist of video 2202 and/or audio 2203 content providers who send certain categories of video and/or audio content 2206 to DBN servers 2204(1)-2204(n) based on the categories of content each server may specialize in, which, in turn, may be determined at least in part on frequency of usage and/or other rights management information sent in VDE containers 2213 to the matching and classification utility 900, or to a usage clearinghouse 300 and then to a matching and classification utility 900. (In another example, other information may be used as the basis of classification, matching, and selection.) The matching and classification utility 900 sends VDE containers 2212 to content sources indicating that they should send content in specific categories 2206 to specific DBN servers 2204. In turn, each DBN server 2204(1)-2204(n) delivers video 2208 and/or audio 2209 in VDE containers to parties interested in such content. In another example, a VDE container may hold both video and audio and/or any other content type.

Detailed Description Text (350):
In this example, a content provider 2702 sends a VDE container 2704 to a secure directory services 600 asking whether the service can provide a list of individuals

in class "AF." The requested class could be any class defined by one or more attributes and may be based on usage profiles that include rights management information, non-exhaustive examples of which include price, payment methods accepted, permitted operations, meters, and privacy controls.

End of Result Set

☐ | Generate Collection | Print

L3: Entry 1 of 1   File: USPT   Feb 3, 1998

US-PAT-NO: 5715403
DOCUMENT-IDENTIFIER: US 5715403 A

TITLE: System for controlling the distribution and use of digital works having attached usage rights where the usage rights are defined by a usage rights grammar

DATE-ISSUED: February 3, 1998

INVENTOR-INFORMATION:
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APPL-NO: 08/ 344041   [PALM]
DATE FILED: November 23, 1994

INT-CL: [06] G06 F 1/14, G06 F 13/372

US-CL-ISSUED: 395/244; 395/188.01, 395/800, 380/23
US-CL-CURRENT: 705/44; 705/54, 705/57, 709/229, 713/202

FIELD-OF-SEARCH: 395/800, 395/600, 395/700, 395/775, 395/650, 395/182.13, 395/608, 395/183.14, 395/201, 395/569, 395/825, 395/712, 395/187.01, 395/188.01, 395/244, 395/217, 380/4, 380/15, 380/18, 380/20, 380/25, 380/24, 380/23, 380/30, 364/DIG.1, 364/DIG.2, 364/41R, 340/825.33, 340/825.34, 348/3, 455/4.1, 455/5.1, 455/26.1

PRIOR-ART-DISCLOSED:

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ART-UNIT: 232

PRIMARY-EXAMINER: Pan; Daniel H.

ABSTRACT:

A system for controlling use and distribution of digital works. The present invention allows the owner of a digital work to attach usage rights to their work. The usage rights define how the individual digital work may be used and distributed. Instances of usage rights are defined using a flexible and extensible usage rights grammar. Conceptually, a right in the usage rights grammar is a label associated with a predetermined behavior and conditions to exercising the right. The behavior of a usage right is embodied in a predetermined set of usage transactions steps. The usage transaction steps further check all conditions which must be satisfied before the right may be exercised. These usage transaction steps define a protocol for requesting the exercise of a right and the carrying out of a right.

28 Claims, 20 Drawing figures

End of Result Set

L3: Entry 1 of 1   File: USPT   Feb 3, 1998

DOCUMENT-IDENTIFIER: US 5715403 A
TITLE: System for controlling the distribution and use of digital works having attached usage rights where the usage rights are defined by a usage rights grammar

US PATENT NO. (1):
5715403

Brief Summary Text (10):
A fundamental issue facing the publishing and information industries as they consider electronic publishing is how to prevent the unauthorized and unaccounted distribution or usage of electronically published materials. Electronically published materials are typically distributed in a digital form and recreated on a computer based system having the capability to recreate the materials. Audio and video recordings, software, books and multimedia works are all being electronically published. Companies in these industries receive royalties for each accounted for delivery of the materials, e.g. the sale of an audio CD at a retail outlet. Any unaccounted distribution of a work results in an unpaid royalty (e.g. copying the audio recording CD to another digital medium.)

Brief Summary Text (12):
The most straightforward way to curb unaccounted distribution is to prevent unauthorized copying and transmission. For existing materials that are distributed in digital form, various safeguards are used. In the case of software, copy protection schemes which limit the number of copies that can be made or which corrupt the output when copying is detected have been employed. Another scheme causes software to become disabled after a predetermined period of time has lapsed. A technique used for workstation based software is to require that a special hardware device must be present on the workstation in order for the software to run, e.g., see U.S. Pat. No. 4,932,054 entitled "Method and Apparatus for Protecting Computer Software Utilizing Coded Filter Network in Conjunction with an Active Coded Hardware Device." Such devices are provided with the software and are commonly referred to as dongles.

Brief Summary Text (24):
A system for controlling use and distribution of digital works is disclosed. A digital work is any written, aural, graphical or video based work that has been translated to or created in a digital form, and which can be recreated using suitable rendering means such as software programs. The present invention allows the owner of a digital work to attach usage rights to their work. The usage rights define how the digital work may be used and distributed. These usage rights become part of the digital work and are always honored.

Drawing Description Text (6):
FIG. 5 illustrates a contents file layout for a digital work as may be utilized in the currently preferred embodiment of the present invention.

Drawing Description Text (7):
FIG. 6 illustrates a contents file layout for an individual digital work of the digital work of FIG. 5 as may be utilized in the currently preferred embodiment of the present invention.

Drawing Description Text (9):
FIG. 8 illustrates a description tree for the contents file layout of the digital work illustrated in FIG. 5.

Detailed Description Text (46):
Herein the terms "digital work", "work" and "content" refer to any work that has
been reduced to a digital representation. This would include any audio, video, text,
or multimedia work and any accompanying interpreter (e.g. software) that may be
required for recreating the work. The term composite work refers to a digital work
comprised of a collection of other digital works. The term "usage rights" or
"rights" is a term which refers to rights granted to a recipient of a digital work.
Generally, these rights define how a digital work can be used and if it can be
further distributed. Each usage right may have one or more specified conditions
which must be satisfied before the right may be exercised. Appendix 1 provides a
Glossary of the terms used herein.

Detailed Description Text (60):
FIG. 4b is an example of a computer system as a rendering system. A computer system
may constitute a "multi-function" device since it may execute digital works (e.g.
software programs) and display digital works (e.g. a digitized photograph).
Logically, each rendering device can be viewed as having it's own repository,
although only one physical repository is needed. Referring to FIG. 4b, a computer
system 410 has contained therein a display/execution repository 411. The
display/execution repository 411 is coupled to display device, 412 and execution
device 413. The dashed box surrounding the computer system 410 represents a security
boundary within which communications are assumed to be secure. The display/execution
repository 411 is further coupled to a credit server 414 to report any fees to be
billed for access to a digital work and a repository 415 for accessing digital works
stored therein.

Detailed Description Text (63):
In the currently preferred embodiment, the file information for a digital work is
divided into two files: a "contents" file and a "description tree" file. From the
perspective of a repository, the "contents" file is a stream of addressable bytes
whose format depends completely on the interpreter used to play, display or print
the digital work. The description tree file makes it possible to examine the rights
and fees for a work without reference to the content of the digital work. It should
be noted that the term description tree as used herein refers to any type of acyclic
structure used to represent the relationship between the various components of a
digital work.

Detailed Description Text (70):
The approach for representing digital works by separating description data from
content assumes that parts of a file are contiguous but takes no position on the
actual representation of content. In particular, it is neutral to the question of
whether content representation may take an object oriented approach. It would be
natural to represent content as objects. In principle, it may be convenient to have
content objects that include the billing structure and rights information that is
represented in the d-blocks. Such variations in the design of the representation are
possible and are

Detailed Description Text (72):
Digital works are stored in a repository as part of a hierarchical file system.
Folders (also termed directories and sub-directories) contain the digital works as
well as other folders. Digital works and folders in a folder are ordered in
alphabetical order. The digital works are typed to reflect how the files are used.
Usage rights can be attached to folders so that the folder itself is treated as a
digital work. Access to the folder would then be handled in the same fashion as any
other digital work As will be described in more detail below, the contents of the
folder are subject to their own rights. Moreover, file management rights may be
attached to the folder which define how folder contents can be managed.

Detailed Description Text (85):
Physical integrity refers to the integrity of the physical devices themselves.
Physical integrity applies both to the repositories and to the protected digital
works. Thus, the higher security classes of repositories themselves may have sensors
that detect when tampering is attempted on their secure cases. In addition to
protection of the repository itself, the repository design protects access to the
content of digital works. In contrast with the design of conventional magnetic and
optical devices--such as floppy disks, CD-ROMs, and videotapes--repositories never
allow non-trusted systems to access the works directly. A maker of generic computer
systems cannot guarantee that their platform will not be used to make unauthorized

copies. The manufacturer provides generic capabilities for reading and writing information, and the general nature of the functionality of the general computing device depends on it. Thus, a copy program can copy arbitrary data. This copying issue is not limited to general purpose computers. It also arises for the unauthorized duplication of entertainment "software" such as video and audio recordings by magnetic recorders. Again, the functionality of the recorders depends on their ability to copy and they have no means to check whether a copy is authorized. In contrast, repositories prevent access to the raw data by general devices and can test explicit rights and conditions before copying or otherwise granting access. Information is only accessed by protocol between trusted repositories.

Detailed Description Text (87):
Behavioral integrity refers to the integrity in what repositories do. What repositories do is determined by the software that they execute. The integrity of the software is generally assured only by knowledge of its source. Restated, a user will trust software purchased at a reputable computer store but not trust software obtained off a random (insecure) server on a network. Behavioral integrity is maintained by requiring that repository software be certified and be distributed with proof of such certification, i.e. a digital certificate. The purpose of the certificate is to authenticate that the software has been tested by an authorized organization, which attests that the software does what it is supposed to do and that it does not compromise the behavioral integrity of a repository. If the digital certificate cannot be found in the digital work or the master repository which generated the certificate is not known to the repository receiving the software, then the software cannot be installed.

Detailed Description Text (93):
The storage system 1207 is further comprised of descriptor storage 1203 and content storage 1204. The description tree storage 1203 will store the description tree for the digital work and the content storage will store the associated content. The description tree storage 1203 and content storage 1204 need not be of the same type of storage medium, nor are they necessarily on the same physical device. So for example, the descriptor storage 1203 may be stored on a solid state storage (for rapid retrieval of the description tree information), while the content storage 1204 may be on a high capacity storage such as an optical disk.

Detailed Description Text (136):
The File management rights enable the making and restoring of backup copies in a way that respects usage rights, honoring the requirements of both the copy owner and the rights grantor and revenue owner. Backup copies of work descriptions (including usage rights and fee data) can be sent under appropriate protocol and usage rights control to other document repositories of sufficiently high security. Further rights permit organization of digital works into folders which themselves are treated as digital works and whose contents may be "hidden" from a party seeking to determine the contents of a repository.

Detailed Description Text (205):
The digital work can be played, transferred,or copied. Copies or transfers must be on repositories of security level 3 or greater. Copying requires the license License-123-ID issued to the copying repository. None of the rights require fees.

Detailed Description Text (273):
To prevent loss of data, the server should not delete any transferred digital work until receiving the final acknowledgement from the requester. But it also should not use the file. A well known way to deal with this situation is called "two-phase commit" or 2PC.

Detailed Description Text (300):
The requester records the digital work contents, data, usage rights, and loan period and stores the work.

Detailed Description Text (303):
The server updates the usage rights data for the digital work. This may preclude use of the work until it is returned from the loan. The user on the requester platform can now use the transferred copies of the digital work. A user accessing the original repository cannot use the digital work, unless there are copies remaining. What happens next depends on the order of events in time.

Detailed Description Text (345):
The server verifies that the contents file is available (i.e. a digital work corresponding to the request has been backed-up.) If it is not, it ends the transaction with an error.

Detailed Description Text (368):
The requester sends the server a message to initiate a Folder transaction. This message indicates the folder that is the root of the folder request, the version of the folder right for the transaction, an operation, and data. The operation can be one of create, rename, and move file. The data are the specifications required for the operation, such as a specification of a folder or digital work and a name.

Detailed Description Text (388):
An Edit transaction is a request to revise a digital work by copying, selecting and modifying portions of an existing digital work. This operation can actually change the contents of a digital work. The kinds of changes that are permitted depend on the process being used. Like the extraction operation, edit operates on portions of a digital work. In contrast with the extract operation, edit does not effect the rights or location of the work. It only changes the contents. The kinds of changes permitted are determined by the type specification of the processor specified in the rights. In the currently preferred embodiment, an edit transaction changes the work itself and does not make a new work. However, it would be a reasonable variation to cause a new copy of the work to be made.

Detailed Description Text (392):
The requester uses the process to change the contents of the digital work as desired. (For example, it can select and duplicate parts of it; combine it with other information; or compute functions based on the information. This can amount to editing text, music, or pictures or taking whatever other steps are useful in creating a derivative work.)

Detailed Description Text (398):
A usage right can specify an authorization-ID, which identifies an authorization object (a digital work in a file of a standard format) that the repository must have and which it must process. The authorization is given to the generic authorization (or ticket) server of the repository which begins to interpret the authorization.

Detailed Description Text (407):
An Install transaction is a request to install a digital work as runnable software on a repository. In a typical case, the requester repository is a rendering repository and the software would be a new kind or new version of a player. Also in a typical case, the software would be copied to file system of the requester repository before it is installed.

Detailed Description Text (410):
The requester extracts a copy of the digital certificate for the software. If the certificate cannot be found or the master repository for the certificate is not known to the requester, the transaction ends with an error.

Detailed Description Text (411):
The requester decrypts the digital certificate using the public key of the master repository, recording the identity of the supplier and creator, a key for decrypting the software, the compatibility information, and a tamper-checking code. (This step certifies the software.)

Detailed Description Text (420):
The requester extracts a copy of the digital certificate for the software. If the certificate cannot be found or the master repository for the certificate is not known to the requester, the transaction ends with an error.

Detailed Description Text (422):
The requester decrypts the digital certificate using the public key of the master repository, recording the identity of the supplier and creator, a key for decrypting the software, the compatibility information, and a tamper-checking code. (This step authenticates the certification of the software, including the script for uninstalling it.)

Detailed Description Text (441):
In this scenario, a creator wants to protect the reputation and value of his work by

making certain requirements on its distributors. He issues licenses to distributors
that satisfy the requirements, and in turn, promises to reward their efforts by
assuring that the work will not be distributed over competing channels. The
distributors incur expenses for selecting the digital work, explaining it to buyers,
promoting its sale, and possibly for the license itself. The distributor obtains the
right to enclose the digital work in a shell, whose function is to permit the
attachment of usage fees to be paid to the distributor in addition to the fees to be
paid to the creator.

Detailed Description Text (469):
In this scenario, several first creators create works. A second creator makes a
selection of these, publishing a collection made up of the parts together with some
new interstitial material. (For example, the digital work could be a selection of
music or a selection of readings.) The second creator wants to continue to allow
some of the selected works to be extractable, but not the interstitial material.

Detailed Description Text (538):
A structure which describes the location of content and the usage rights and usage
fees for a digital work. A description tree is comprised of description blocks. Each
description block corresponds to a digital work or to an interest (typically a
revenue bearing interest) in a digital work.

Detailed Description Text (563):
A special type of description block designating an interest in a digital work, but
which does not add content. This will typically be added by a distributor of a
digital work to add their fees.

Detailed Description Paragraph Table (2):
TABLE 2 _____ REPOSITORY SECURITY LEVELS Level
Description of Security _____ 0 Open system.
Document transmission is unencrypted. No digital certificate is required for
identification. The security of the system depends mostly on user honesty, since
only modest knowledge may be needed to circumvent the security measures. The
repository has no provisions for preventing unauthorized programs from running and
accessing or copying files. The system does not prevent the use ofremovable storage
and does not encrypt stored files. 1 Minimal security. Like the previous class
except that stored files are minimally encrypted, including ones on removable
storage. 2 Basic security. Like the previous class except that special tools and
knowledge are required to compromise the programming, the contents of the
repository, or the state of the clock. All digital communications are encrypted. A
digital certificate is provided as identification. Medium level encryption is used.
Repository identification number is unforgeable. 3 General security. Like the
previous class plus the requirement of special tools are needed to compromise the
physical integrity of the repository and that modest encryption is used on all
transmissions. Password protection is required to use the local user interface. The
digital clock system cannot be reset without authorization. No works would be stored
on removable storage. When executing works as programs, it runs them in their own
address space and does not give them direct access to any file storage or other
memory containing system code or works. They can access works only through the
transmission transaction protocol. 4 Like the previous class except that high level
encryption is used on all communications. Sensors are used to record attempts at
physical and electronic tampering. After such tampering, the repository will not
perform other transactions until it has reported such tampering to a designated
server. 5 Like the previous class except that if the physical or digital attempts at
tampering exceed some preset thresholds that threaten the physical integrity of the
repository or the integrity of digital and cryptographic barriers, then the
repository will save only document description records of history but will erase or
destroy any digital identifiers that could be misused if released to an unscrupulous
party. It also modifies any certificates of authenticity to indicate that the
physical system has been compromised. It also erases the contents ofdesignated
documents. 6 Like the previous class except that the repository will attempt
wireless communication to report tampering and will employ noisy alarms. 10 This
would correspond to a very high level of security. This server would maintain
constant communications to remote security systems reporting transactions, sensor
readings, and attempts to circumvent security.

Other Reference Publication (19):
Simmel, S.S., and Godard, I., "Metering and Licensing of Resources: Kala's General

Purpose Approach," IMA Intellectual Property Project Proceedings, Jan. 1994, vol. 1, Issue 1, pp. 81-110.

CLAIMS:

8. The distribution system as recited in claim 1 wherein said digital work is a software program.

9. The distribution system as recited in claim 8 wherein said grammar is further for creating instances of a usage right indicating that said possessor of said digital work is able to install said software program.

10. The distribution system as recited in claim 8 wherein said grammar is further for creating instances of a usage right indicating that said possessor of said digital work is able to uninstall said software program.

17. The computer based system for controlling distribution and use of digital works as recited in claim 14 wherein said grammar is further comprised of a third plurality of grammar elements for defining file management usage rights.

21. The computer based system for controlling distribution and use of digital works as recited in claim 14 wherein said grammar is further comprised of a fifth plurality of grammar elements for enabling the secure installation and uninstallation of digital works comprising of software programs.